

Amendments to the Claims:

Claim Listing

1.-12. (Cancelled)

13 (Original) A transgenic plant of a species in which natively γ -tocopherol is not the predominant tocopherol in its seeds, the transgenic plant altered to produce γ -tocopherol as the most abundant tocopherol in the seeds of the plant.

14. (Original) Seeds of the plant of claim 13.

15. (Original) Oil from the seeds of claim 14.

16. (Original) A transgenic plant as claimed in claim 13 wherein the transgenic plant carries in its genome a foreign genetic construction comprising γ -tocopherol methyltransferase gene selected from the group consisting of SEQ ID NO:1 and SEQ ID NO:3.

17. (Original) A transgenic plant which has an altered profile of tocopherols in its seeds or oils compared to non-transgenic plants of the same species.

18. (Original) Seed of the plant of claim 17.

19. (Original) Oil from the seeds of claim 18.

20. (Original) A transgenic plant seed of a plant species in which γ -tocopherol is natively not the predominant tocopherol in seeds, the transgenic plant seed containing γ -tocopherol as the most abundant tocopherol present in the transgenic plant seed.

21. (Original) Oil from the seed of claim 20.

22.-25. (Cancelled)

26. (Re-presented in independent form-formerly dependent claim 12) Oil from the seed of a plant comprising a genetic construct having a γ -tocopherol methyltransferase coding sequence operably connected to a plant promoter not natively associated with the coding sequence; wherein the plant has an altered δ -tocopherol : β -tocopherol ratio relative to an untransformed wild-type plant.

27. (New) A method of altering a characteristic of a plant comprising the step of incorporating into the genome of the plant a genetic construct comprising a γ -tocopherol methyltransferase coding sequence operably connected to a plant promoter not natively associated with the coding sequence, wherein the γ -tocopherol methyltransferase coding sequence comprises at least one S-adenosylmethionine (SAM) binding domain conserved in all plant γ -tocopherol methyltransferases in the γ -tocopherol biosynthetic pathway and lacks a sterol binding domain, such that when the coding sequence is expressed in the plant, the characteristic of the plant is altered to produce more α -tocopherol compared to a control plant that is not transformed with the construct.

28. (New) The method of Claim 27 wherein the altered characteristic is selected from the group consisting of altered α -tocopherol: γ -tocopherol ratio, increased levels of α -tocopherol, and decreased levels of γ -tocopherol.

29. (New) The method as set forth in claim 27 wherein the plant is selected from the group consisting of maize, soybean, rapeseed, cotton, peanut, safflower, castor, sunflower, cabbage, carrot, pears apple, cabbage, cauliflower, lettuce, banana, potato, barley, wheat, palm, and rice.

30. (New) A plant having a characteristic genetically altered through incorporation into the genome of the plant of a genetic construct comprising a γ -tocopherol methyltransferase coding sequence operably connected to a plant promoter not natively associated with the coding sequence, wherein the γ -tocopherol methyltransferase coding sequence comprises at least one S-adenosylmethionine (SAM) binding domain conserved in all plant γ -tocopherol methyltransferases in the γ -tocopherol biosynthetic pathway and lacks a sterol binding domain, such that when the coding sequence is expressed in the plant, the characteristic of the plant is altered to produce more α -tocopherol compared to a control plant that is not transformed with the construct.

31. (New) The seed of the plant of claim 30.

32. (New) A method of altering a characteristic of a plant comprising the step of incorporating into the genome of the plant a genetic construct comprising a γ -tocopherol methyltransferase coding sequence operably connected to a plant promoter not natively associated with the coding sequence, wherein the γ -tocopherol methyltransferase coding sequence encodes a protein selected from the group consisting of:

- (a) an amino acid as shown in SEQ ID NO:2 or 4; or
- (b) an amino acid sequence having at least about 35% sequence identity to SEQ ID NO: 4;
- and (c) an amino acid sequence having at least about 61% sequence similarity to SEQ ID NO: 4.

33. (New) A plant having a characteristic genetically altered through incorporation into the genome of the plant a genetic construct comprising a γ -tocopherol methyltransferase coding sequence operably connected to a plant promoter not natively associated with the coding sequence, the coding sequence encoding the expression of a protein selected from the group consisting of:

- (a) an amino acid as shown in SEQ ID NO:2 or 4; or
- (b) an amino acid sequence having at least about 35% sequence identity to SEQ ID NO: 4;
- and
- (c) an amino acid sequence having at least about 61% sequence similarity to SEQ ID NO: 4.

34. (New) A genetic construct comprising a plant γ -tocopherol methyltransferase coding sequence operably connected to a plant promoter not natively associated with the coding sequence, wherein the coding sequence encodes the expression of a γ -tocopherol methyltransferase protein which (1) has at least one SAM binding domain conserved in all plant γ -tocopherol methyltransferases in the γ -tocopherol biosynthetic pathway; (2) which is at least 35% identical in amino acid sequence to SEQ ID NO: 4; (3) which has the following amino acid sequences corresponding to the following motifs in SEQ ID NO: 4 when aligned by sequence alignment with SEQ ID NO: 4: WGDHMHG at residues 79-86, GCGIGGS at residues 134-141, ESGEHMP at residues 202-208, and TWCHR at residues 231-235; and (4) which will increase the level of α -tocopherol present in a plant when expressed in a plant.

35. (New) A transgenic plant containing in its genome the genetic construct of claim 34.

36. (New) A transgenic plant seed containing in its genome the genetic construct of claim 34.
37. (New) A soybean comprising seed oil, the α -tocopherol content of which is at least 77%.
38. (New) A corn seed comprising seed oil, the α -tocopherol content of which is at least 90%